



Dart Aerospace Ltd.
1270 Aberdeen St
Hawkesbury, ON
K6A 1K7
Canada

Tel (613) 632-5200
Fax 613 632-5246

RB AN8514-1-4
Job Sheet 183749



Part No: RB AN8514-1-4

Job Qty: 8 ea

Part Name: Arm, Adjustable Spanner Wrench



Part Weight: 0 lbs

Status: Scheduled

Priority: Medium

Job Created: 9/25/18

Job Tracking No:

Due Date: 9/28/18

Created By: Marie Lajeunesse

Type: SOLD

Description:

Note: DWG RB AN8514-1 Rev 4 IPP Rev A 18.01.18 New issue DP Verify DD

Ship Via:

Bill of Materials

Job Routing

Op No	Operation	Qty	Start Date	Due Date	Standard		Workcenter/Supplier		Sign-off
					Setup hrs	Run Hrs	Workcenter / Supplier	Lead Time	
90	Start up Operation	6 Ea	9/28/18	9/28/18	0.00	0.00	Start Up Waterjet		18/10/04
100	Waterjet - B4B	6 pcs	9/28/18	9/28/18	0.00	0.60	Waterjet 2 OMAX		18/10/04
110	QC	6 pcs	9/28/18	9/28/18	0.00	0.00	QC2 Waterjet-4		18/10/04
120	Mori Seiki	6 pcs	9/28/18	9/28/18	0.00	6.00	MORI NV5000-2		J.C.L.
130	QC	6 pcs	9/28/18	9/28/18	0.00	0.00	QC2-2		J.C.L. 18-10-11
140	QC	6 pcs	9/28/18	9/28/18	0.00	0.00	QC8		18-10-11
160	Outsource	6 pcs	9/28/18	9/28/18			ATL002-VC	8	OCT 29 2018
170	Outsource	6 pcs	9/28/18	9/28/18			GRO002-VC	10	OCT 29 2018
180	Packaging	6 pcs	9/28/18	9/28/18	0.00	0.00	Packaging2		OCT 30 2018
190	QC	6 pcs	9/28/18	9/28/18	0.00	0.00	QC6		38
200	Packaging	6 pcs	9/28/18	9/28/18	0.00	0.00	Packaging3-1		9-89
210	QC21-SA	6 Ea	9/28/18	9/28/18	0.00	0.00	QC21		NOV 01 2018

Part Op 100 - 1-Cut as per Dwg (Red Barn folder) Dwg Rev: 4 Prog Rev: 4 2-Deburr if necessary
Descriptions: 120 - 1-Machine as per folio FB891 FOLIO REV: DWG REV: 2-Deburr 3-BLUE BIN #132
130 - -Engrave # only using marktronic
160 - 1--Issue P/O to ATLANTIC HEAT TREAT ; P/O 041370 RC 22-32 2-Bead blast 3-Black oxide finish, MIL-
C-13924C Class 1 -Apply thin layer of oil/CPC per MIL-PRF-16173 Grade 3 Class 1 or MIL-c-81309 Type III Or MILL-
C23411A or MIL-PRF-81309 and wipe off excess. -Certificate of Conformity is required

Job BOM

Part / Item	Component Name	Quantity	Operation	Container
MT-4140-B-0.500X4.000	4140 Steel Bar 0.500 X 4.000	.2400 ft (.04 ea)	90-Start up Operation	

Job Allocations

Operation	Component Part	Required	Inventory	Allocated
90-Start up Operation	MT-4140-B-0.500X4.000	0	4	0

Part Specifications

Specifications could not be found.

DQA: _____ Date: _____

WORK ORDER NON-CONFORMANCE / UPDATE



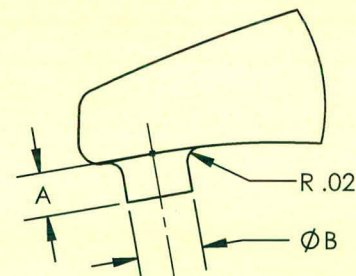
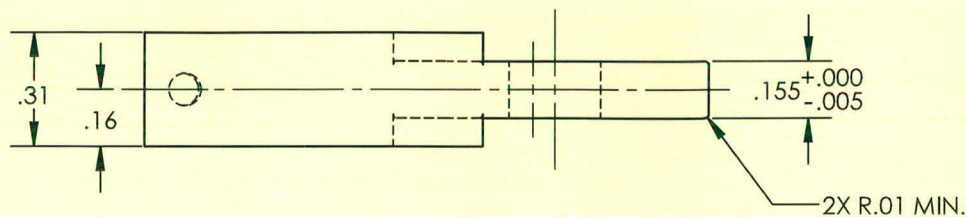
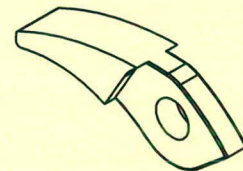
QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐		Cross tube ☐ Small Fab ☐ Finishing ☐		Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐		Engineering ☐ Quality ☐ Other ☐	
Date : _____		Step #: _____		DART AEROSPACE 1275 ROUTE 100 UNIT 100 DANBURY, CT 06810 TEL: 813 832-5200 Email: sales@dartaer.com www.dartaer.com Part: RB AN8514-1-4 Job No: 183749 Serial No/Batch: S115986 Revision: 4 Inspector: _____ Exp Date: _____ Instructions: _____ Date: 10/04/18							
Description Work Order											
Root Cause <table border="0" style="width: 100%;"> <tr> <td style="width: 50%;"> Environment ☐ Design ☐ Doc/Data ☐ Equip/Tooling ☐ Handling/Pre ☐ Material ☐ Internal Transport ☐ Tribal Knowledge ☐ LOA ☐ Substation ☐ Past Expiry Date ☐ Misidentified ☐ </td> <td style="width: 50%;"> No Re-verification ☐ Operator ☐ Offset/Setup ☐ Supplier ☐ Training ☐ Use for Testing ☐ Poor Information ☐ Rushing ☐ Product Improvement ☐ Process Improvement ☐ Manufacturing Process ☐ Past Due ☐ </td> </tr> </table>		Environment ☐ Design ☐ Doc/Data ☐ Equip/Tooling ☐ Handling/Pre ☐ Material ☐ Internal Transport ☐ Tribal Knowledge ☐ LOA ☐ Substation ☐ Past Expiry Date ☐ Misidentified ☐	No Re-verification ☐ Operator ☐ Offset/Setup ☐ Supplier ☐ Training ☐ Use for Testing ☐ Poor Information ☐ Rushing ☐ Product Improvement ☐ Process Improvement ☐ Manufacturing Process ☐ Past Due ☐	<table border="0" style="width: 100%;"> <tr> <td style="width: 50%;"> Centre Not Concentric ☐ Cracks ☐ Crimp/Kink/Ripple/Wave ☐ Cuffs ☐ Crushing ☐ Heat Treat ☐ Wave/Twist in Tube ☐ Marks/Chatter ☐ </td> <td style="width: 50%;"> BOM/Route ☐ Broken/Damage/Defect ☐ Inspection Incomplete/Unqualified ☐ Contamination ☐ Countersink ☐ Cut Too Short ☐ Instructions Incomplete/Unclear ☐ Drill Holes ☐ </td> </tr> </table>		Centre Not Concentric ☐ Cracks ☐ Crimp/Kink/Ripple/Wave ☐ Cuffs ☐ Crushing ☐ Heat Treat ☐ Wave/Twist in Tube ☐ Marks/Chatter ☐	BOM/Route ☐ Broken/Damage/Defect ☐ Inspection Incomplete/Unqualified ☐ Contamination ☐ Countersink ☐ Cut Too Short ☐ Instructions Incomplete/Unclear ☐ Drill Holes ☐	<table border="0" style="width: 100%;"> <tr> <td style="width: 50%;"> Grain ☐ Weld ☐ Wrong Stock Pulled ☐ Out of Sequence ☐ Off-set ☐ Mislabeled ☐ Fit/Function ☐ Misaligned/off center ☐ </td> <td style="width: 50%;"> Positioned Wrong ☐ Outside Dimensions ☐ Over/Under tolerance ☐ Part Incorrect ☐ Part Lost/Missing ☐ Part Moved ☐ Drawing ☐ Finish ☐ Misread ☐ Turning Sequence ☐ </td> </tr> </table>		Grain ☐ Weld ☐ Wrong Stock Pulled ☐ Out of Sequence ☐ Off-set ☐ Mislabeled ☐ Fit/Function ☐ Misaligned/off center ☐	Positioned Wrong ☐ Outside Dimensions ☐ Over/Under tolerance ☐ Part Incorrect ☐ Part Lost/Missing ☐ Part Moved ☐ Drawing ☐ Finish ☐ Misread ☐ Turning Sequence ☐
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OTHER : _____											

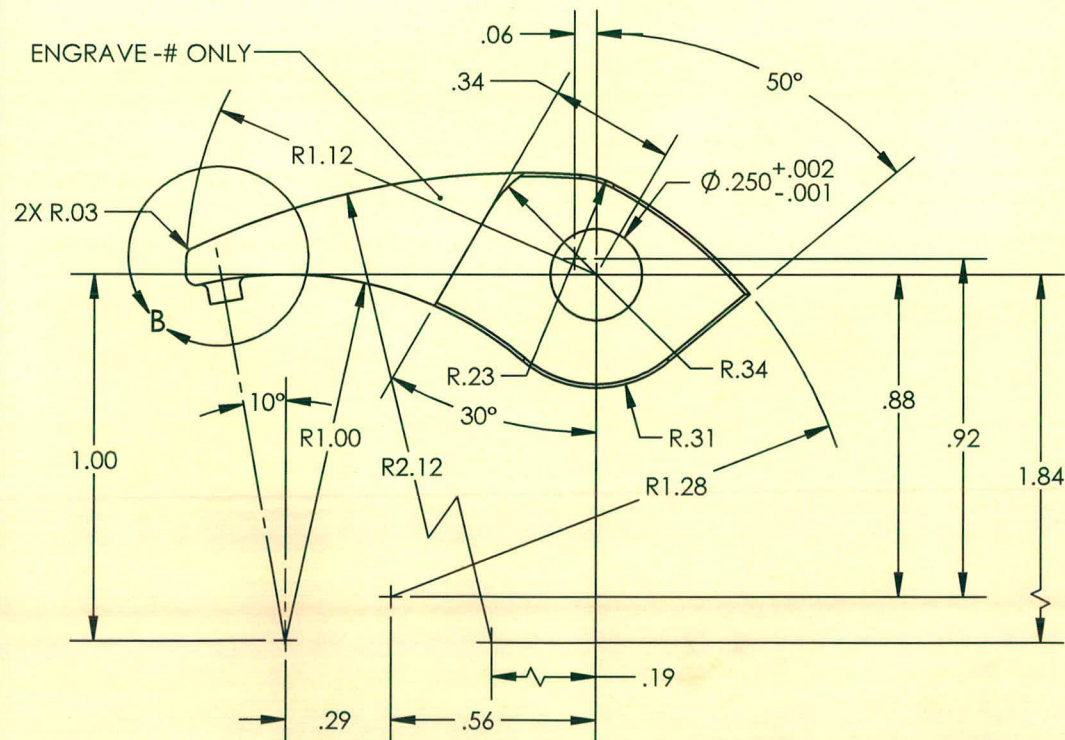
This drawing, specifications, and concepts contained here in are the sole property of Dart Aerospace, and may not be reproduced or used in any fashion without the prior written permission of Dart Aerospace Eugene, OR.

REVISIONS				
REV	ECR	DESCRIPTION	DATE	INITIAL
B		CH'D ENGRAVE NOTES.	8/3/2009	RJC
C		ADDED MISSING DIMS, CH'D SOME DIM PRECISION TO MATCH INFO REC'D. ADDED TABLE.	1/10/2011	RJC
4	16-0046	-4 CH'D MAT'L WAS 4140 IS 4140/4142, DELETED .077 ±.005, ADDED MISSING DIMS 1.84, .29.	3/1/2016	RJC



DETAIL B
SCALE 4 : 1

SHOP COPY
RETURN TO
ENGINEERING
UNCONTROLLED COPY
SUBJECT TO AMENDMENT
WITHOUT NOTICE
WORK ORDER
NO. 183749
MWS
18-09-25



(-4) (-5) (-6)

ARM

AN P/N		DIMENSION	
		A ±.005	Ø B ±.003
RB AN8514-4	.09 PIN ARM	.060	.089
RB AN8514-5	.12 PIN ARM	.120	.121
RB AN8514-6	.19 PIN ARM	.190	.183

DART AEROSPACE	
TITLE ADJUSTABLE SPANNER WRENCH	
DWG NO. RB AN8514-1-4	REV 4
MAT'L 4140/4142	UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
HEAT RC 22-32	.XXX ± .005 FRACTIONS ± 1/8
TREAT	.XX ± .01 ANGLES ± 5°
FINISH BLACK OXIDE	.X ± .1 SURFACES = 125/✓
SPEC QMSI-6.2.2 REV D	1. BREAK ALL SHARP EDGES .015 x 45° OR .015R
DRAWN BY: COLE	2. DIMENSIONAL LIMITS APPLY AFTER PLATING
CHECKED: DUERFELDT	3. INTERPRET DIM AND TOL PER ASME Y14.5M-2009
OPPS APPR: ANDERSON	USED ON MODEL
QA APPR: LINDSAY	
APPROVED: GILBERT	BELL 212, 230, 407, 412, 430
SCALE 2:1	DATE 6/26/2000
SHEET 4 OF 5	



Dart Aerospace Ltd.
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PURCHASE ORDER PO041370

Supplier: ATL002-VC
Atlantic Heat Treat 2001
401 Frankcom
Ajax
ON
L1S R14 Canada
Phone: 866 257 6395

Ship To: 1270 Aberdeen Street
Hawkesbury
ON
K6A 1K7 Canada
Phone: 613-632-5200

PO No: PO041370
PO Date: 10/18/18
Due Date: 10/29/18
Purchase Order Revision:
Revision Date:
Ship-To Contact: Hemmerich, Steven
Phone: 613-632-5200 Ext: 281
shemmerich@dartaero.com
Pymt Terms: Net 30
Freight Terms:
Special Comments:

Items

Line Item	Job	Part	Description	Status	Account	Due Date	Order Quantity	Received Quantity	Balance	Unit Price (CAD)	Extended Price
1	182811	RB AN8514- 1-7	Arm, Adjustable Spanner Wrench 1-Issue P/O to ATLANTIC HEAT TREAT; P/O _____ RC 22-32 2-Bead blast 3--Black oxide finish, MIL-C-13924C Class 1 -Apply thin layer of oil/CPC per MIL-PRF-16173 Grade 3 Class 1 or MIL-c-81309 Type III Or MILL-C23411A or MIL-PRF-81309 and wipe off excess. -Certificate of Conformity is required	Firmed	-	10/29/18	8 pcs	0 pcs	8 pcs	\$25.00/pcs	\$200.00



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PURCHASE ORDER **PO041370**

Items											
Line Item	Job	Part	Description	Status	Account	Due Date	Order Quantity	Received Quantity	Balance	Unit Price (CAD)	Extended Price
2	183752	RB AN8514-1-7	Arm, Adjustable Spanner Wrench 1-Issue P/O to ATLANTIC HEAT TREAT; P/O _____ RC 22-32 2-Bead blast 3--Black oxide finish, MIL-C-13924C Class 1 -Apply thin layer of oil/CPC per MIL-PRF-16173 Grade 3 Class 1 or MIL-c-81309 Type III Or MILL-C23411A or MIL-PRF-81309 and wipe off excess. -Certificate of Conformity is required	Firmed	-	10/29/18	11 pcs	0 pcs	11 pcs	\$18.1818/pcs	\$200.00
3	183603	C3-3-4	Link Pin 1--Issue P/O to Atlantic Heat Treat; P/O _____ RC 53-56 2-Bead blast 3- Certificate of Conformity is required ***NOTE*** DROP SHIP TO FINISHER Atlantic Heat Treat to ship directly to Groupe Altech***	Firmed	-	10/29/18	40 pcs	0 pcs	40 pcs	\$2.0625/pcs	\$82.50
4	183750	RB AN8514-1-5	Arm, Adjustable Spanner Wrench 1--Issue P/O to ATLANTIC HEAT TREAT ; P/O _____ RC 22-32 2-Bead blast 3-Black oxide finish, MIL-C-13924C Class 1 -Apply thin layer of oil/CPC per MIL-PRF-16173 Grade 3 Class 1 or MIL-c-81309 Type III Or MILL-C23411A or MIL-PRF-81309 and wipe off excess. -Certificate of Conformity is required	Firmed	-	10/29/18	10 pcs	0 pcs	10 pcs	\$20.00/pcs	\$200.00



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PURCHASE ORDER **PO041370**

Items											
Line Item	Job	Part	Description	Status	Account	Due Date	Order Quantity	Received Quantity	Balance	Unit Price (CAD)	Extended Price
5	183749	RB AN8514-1-4	Arm, Adjustable Spanner Wrench 1--Issue P/O to ATLANTIC HEAT TREAT ; P/O RC 22-32 2-Bead blast 3-Black oxide finish, MIL-C-13924C Class 1 -Apply thin layer of oil/CPC per MIL-PRF-16173 Grade 3 Class 1 or MIL-c-81309 Type III Or MILL-C23411A or MIL-PRF-81309 and wipe off excess. -Certificate of Conformity is required	Firmed	-	10/29/18	7 pcs	0 pcs	7 pcs	\$28.571428/pcs	\$200.00
6	183200	C2-3-3	Latch Roller 1--Issue P/O to Atlantic Heat Treat; P/O RC 53-56 2-Bead blast 3- Certificate of Conformity is required	Firmed	-	10/29/18	54 pcs	0 pcs	54 pcs	\$1.527777/pcs	\$82.50
Grand Total:											\$965.00

Order Notes

Terms & Condition of Purchasing(Suppliers) and Procurement Quality Clauses are an integral part of our AS9100 requirements. To learn in detail, please visit www.dartaerospace.com for further explanation.

Plex 10/29/18 8:12 AM dart.tsimiklis.chrisoula

DAS
38
9-89

Shipping Ticket

Sold To: 1448
DART AEROSPACE LTD.
1270 ABERDEEN ST

HAWKESBURY ON K6A 1K7

Ship To: 156806
DART AEROSPACE LTD.
1270 ABERDEEN ST

HAWKESBURY ON K6A 1K7

Page 1 of 1

Purchase Order Number	Packing List No	Customer Job No	Route	Carrier
PO041370 ✓				

Quantity	Part No. / Part Name / Part Description	Pounds
✓ 7PCS	SAND BLAST AND BLACK OXIDE C OF C, PRT# RB AN8514-1-4, JOB#183749 ✓	

Container Type	# Of Containers	Cust Cont Id	Container Type	# Of Containers	Cust Cont Id
BOX	1				

NOTICE: OUR LIABILITY IS LIMITED TO OUR INVOICE CHARGES ONLY

Shipped Complete

Quantity Shipped:

7

Pounds Shipped:

1.00

Order No.: 159677

Shipped Complete

Quantity Shipped:

7.00

Received By:

Date:

Pounds Shipped:

1.00

Sold To: DART AEROSPACE LTD.

Shipped ON: 10/24/2018

AP
32 Re
Box
10-25-18

Certification

Date: 10/24/2018

Entry Date: 10/24/2018

Page: 1 of 1

To:DART AEROSPACE LTD.
1270 ABERDEEN ST

Purchase Order No.: PO041370 ✓

Packing List No.:

HAWKESBURY ON K6A 1K7

Material: BLACK OXIDE

We are pleased to provide you with the following Certificate of Compliance.

Quantity	Part Number / Part Name / Part Description	Pounds
✓ 7	7PCS SAND BLAST AND BLACK OXIDE C OF C, PRT# RB AN8514-14, JOB#183749. ✓	1

Insp. Type	Scale	Minimum	Maximum	Number	Other
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Customer Requirements:

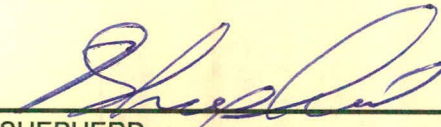
Harden rockwell

Results:

Harden ROCKWE 22. 32. 32. TESTED AS PER SAMPLING PLAN
HEAT TREATED TO 32 RC AS PER CUSTOMER REQUEST
BLACK OXIDE AS PER CUSTOMER REQUEST

STATEMENT OF LIMITED LIABILITY (PLEASE READ CAREFULLY). ALL WORK IS ACCEPTED SUBJECT TO THE FOLLOWING CONDITIONS: It is recognized that even after employing all the scientific methods known to us, hazards still remain in metal treating. THEREFORE, OUR LIABILITY SHALL NOT EXCEED TWICE THE AMOUNT OF OUR CHARGES FOR THE WORK DONE ON ANY MATERIAL (FIRST TO REIMBURSE FOR THE CHARGES AND SECOND TO COMPENSATE IN THE AMOUNT OF THE CHARGES), EXCEPT BY WRITTEN AGREEMENT SIGNED BY THE METAL TREATER. THE CUSTOMER, BY CONTRACTING FOR METAL TREATMENT, AGREES TO ACCEPT THE LIMITS OF LIABILITY AS EXPRESSED IN THIS STATEMENT TO THE EXCLUSION OF ANY AND ALL PROVISIONS AS TO LIABILITY ON THE CUSTOMER'S OWN INVOICES, PURCHASE ORDERS OR OTHER DOCUMENTS. IF THE CUSTOMER DESIRES HIS OWN PROVISIONS AS TO LIABILITY TO REMAIN IN FORCE AND EFFECT, THIS MUST BE AGREED TO IN WRITING, SIGNED BY AN OFFICER OF THE TREATER, IN SUCH EVENT, A DIFFERENT CHARGE FOR OUR SERVICES REFLECTING THE HIGHER RISK TO TREATER, SHALL BE DETERMINED BY THE TREATER AND CUSTOMER. THE TREATER MAKES NO EXPRESS OR IMPLIED WARRANTIES AND SPECIFICALLY DISCLAIMS ANY IMPLIED WARRANTY OF THE FITNESS FOR A PARTICULAR PURPOSE OR MERCHANTABILITY, AS TO THE PERFORMANCE OF CAPABILITIES OF THE MATERIAL AS HEAT TREATED, OR THE HEAT TREATMENT. THE AFOREMENTIONED LIMITATION OF LIABILITY STATED ABOVE IS SPECIFICALLY IN LIEU OF ANY EXPRESS OR IMPLIED WARRANTY, INCLUDING ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS, AND OF ANY OTHER SUCH OBLIGATION ON THE PART OF THE TREATER. No claim for shortage in weight or count will be entertained unless presented within five (5) working days after receipt of materials by customer. No claim will be allowed for shrinkage, expansion, deformity, or rupture of material in treating or straightening, except by prior written agreement, as above, nor in any case for rupture caused by or occurring during subsequent grinding. Whenever we are given material with detailed instructions as to treatment, our responsibility shall end with the carrying out of those instructions. Failure by a customer to indicate plainly and correctly the kind of material (i.e., proper alloy designation) to be treated, shall cause an extra charge to be made to cover any additional expense incurred as a result thereof, but shall not change the limitation of liability stated above. Customer agrees there will be no liability on the treater in contract for any special, indirect or consequential damages arising whatsoever, including but not limited to personal injury, property damage, loss of profits, loss of production, recall or any other losses, expenses or liabilities allegedly occasioned by the work performed on the part of the treater. It shall be the duty of the customer to inspect the merchandise immediately upon its return, and in any event claims must be reported prior to the time that any further processing, assembling or any other work undertaken. OUR LIABILITY TO OUR CUSTOMERS SHALL CEASE ONCE ANY FURTHER PROCESSING, ASSEMBLING OR ANY OTHER WORK HAS BEEN UNDERTAKEN ON SAID MATERIAL. No agent or representative is authorized to alter the above conditions, except by writing duly signed by an officer of treater.

DAS
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9-89


KEAN SHEPHERD
QUALITY CONTROL
ATLANTIC HEAT TREATING 2001 LTD

